

Interstate Commission on the Potomac River Basin (ICPRB)

Interstate compact: VA, WV, MD, PA, DC



Contact Information

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Program Description

ICPRB has no water/land ownership, management or regulatory authority, and therefore has set no water quality standards. However, since the Commission's creation in 1940, ICPRB often assists the basin states (Virginia, Maryland, West Virginia and Pennsylvania), the District of Columbia, and the federal government on such formulations. As part of this assistance, ICPRB conducts stream bioassessments, both fish and benthic, consults with the jurisdictions regarding current and proposed biocriteria and water quality standards, and works with the jurisdictions' data to better understand and characterize the environmental conditions of the Potomac River watershed and associated land usages.

ICPRB is currently working to integrate data from many sources (Virginia, Maryland, West Virginia, Pennsylvania, the District of Columbia, various federal and local governments, and nongovernmental sources) into a single reference watershed analysis. In addition to benthic and fish monitoring in streams and wadeable rivers, ICPRB is doing shad and herring restoration work in non-wadeable rivers. The stream data collected downstream of reservoirs, influences reservoir management decisions. The Commission also analyzes estuary data collected by other entities and works on Chesapeake Bay water quality issues.

Documentation and Further Information

Potomac Basin Water Quality Assessment home (with links to District of Columbia, Maryland, Pennsylvania, Virginia and West Virginia 305(b) and 303(d) information): <http://www.potomacriver.org/wqassess.htm>

Map of 303(d)-Listed Waters in the Potomac Basin: <http://www.potomacriver.org/wq303d.htm>

Virginia DEQ Water Quality Assessment Guidance Manual for 2002, 305(b) Water Quality Report and 303(d) Impaired Waters List, amended July 2002: <http://www.deq.state.va.us/pdf/water/wqassessguide.pdf>

2000 Maryland Section 305(b) Water Quality Report, with Appendix E, *Assessment Methodology*, August 2000: http://dnrweb.dnr.state.md.us/download/bays/MD2000_305b.pdf

Commonwealth of Pennsylvania 2000 Water Quality Assessment 305(b) Report:
http://www.dep.state.pa.us/dep/deputate/watermgt/Wqp/WQStandards/305_wq2000_narr.htm

For a link to *West Virginia Water Quality Status Assessment 2000 305(b) Report for the period 1997-1999*, go to: <http://www.dep.state.wv.us/item.cfm?ssid=11&ss1id=192>

For a list of ICPRB publications and ordering information, go to: <http://www.potomacriver.org/publications.htm>

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Programmatic Elements

Uses of bioassessment within overall water quality program	<input checked="" type="checkbox"/>	problem identification (screening)
	<input checked="" type="checkbox"/>	nonpoint source assessments
	<input checked="" type="checkbox"/>	monitoring the effectiveness of BMPs
	<input checked="" type="checkbox"/>	ALU determinations/ambient monitoring
	<input type="checkbox"/>	promulgated into state water quality standards as biocriteria
	<input type="checkbox"/>	support of antidegradation
	<input type="checkbox"/>	evaluation of discharge permit conditions
	<input checked="" type="checkbox"/>	TMDL assessment and monitoring
		other:
Applicable monitoring designs	<input checked="" type="checkbox"/>	targeted (i.e., sites selected for specific purpose) (<i>special projects and specific river basins or watersheds</i>)
	<input type="checkbox"/>	fixed station (i.e., water quality monitoring stations)
	<input type="checkbox"/>	probabilistic by stream order/catchment area
	<input type="checkbox"/>	probabilistic by ecoregion, or statewide
	<input checked="" type="checkbox"/>	rotating basin (<i>special projects and specific river basins or watersheds</i>)
		other:

Stream Miles

Total miles*	383
<i>(total miles of Potomac River mainstem, not including tributaries)</i>	
Total perennial miles	—
Total miles assessed for biology**	n/a
fully supporting for 305(b)	n/a
partially/non-supporting for 305(b)	n/a
listed for 303(d)	n/a
number of sites sampled*	~1,300
number of miles assessed per site	—

*The Potomac River drainage area includes 14,670 square miles in the following jurisdictions: Maryland, Virginia, West Virginia, Pennsylvania and the District of Columbia.

**ICPRB is not a regulatory authority, but assists the states in the Potomac River Basin (ICPRB doesn't develop own criteria, etc.). The Commission looks at the basin as a whole, across state lines, and thus has no way of producing an accurate estimate of miles assessed. Although ICPRB works with the data from roughly 1,300 sampling stations, sampling is only conducted at several hundred of those stations – these include the samples collected and provided to Pennsylvania's Potomac Watershed Program. The rest of the stations are sampled by various state agencies who supply ICPRB with data to analyze and use for management decisions.

Aquatic Life Use (ALU) Designations and Decision-Making*

ALU designation basis	n/a	
ALU designations in state water quality standards	n/a	
Narrative Biocriteria in WQS	n/a	
Numeric Biocriteria in WQS	n/a	
Uses of bioassessment data in integrated assessments with other environmental data (e.g., toxicity testing and chemical specific criteria)	✓	assessment of aquatic resources
	n/a	cause and effect determinations
	n/a	permitted discharges
	✓	monitoring (e.g., improvements after mitigation)
	✓	watershed based management
Uses of bioassessment/biocriteria in making management decisions regarding restoration of aquatic resources to a designated ALU	Not applicable for ICPRB, but member jurisdictions in the Potomac basin use data in various ways.	

*ICPRB does not define aquatic life uses, but uses those designated by member jurisdictions: Virginia, Maryland, West Virginia, Pennsylvania, and the District of Columbia.

Reference Site/Condition Development**

Number of reference sites	under development	
Reference site determinations	<input type="checkbox"/>	site-specific
	<input type="checkbox"/>	paired watersheds
	<input checked="" type="checkbox"/>	regional (aggregate of sites)
	<input type="checkbox"/>	professional judgment
	<input type="checkbox"/>	other:
Reference site criteria	Under development. Each member jurisdiction has its own reference site criteria. ICPRB is working to establish regional reference sites using the "common elements" of the various jurisdictions' habitat evaluations and water quality information. The criteria will be based on water quality data and habitat parameters, and possibly macroinvertebrate data as well. The reference sites will be the least disturbed sites based on these parameters.	
Characterization of reference sites within a regional context	<input type="checkbox"/>	historical conditions
	<input checked="" type="checkbox"/>	least disturbed sites
	<input checked="" type="checkbox"/>	gradient response
	<input type="checkbox"/>	professional judgment
	<input type="checkbox"/>	other:
Stream stratification within regional reference conditions	<input checked="" type="checkbox"/>	ecoregions (or some aggregate)
	<input type="checkbox"/>	elevation
	<input type="checkbox"/>	stream type
	<input type="checkbox"/>	multivariate grouping
	<input checked="" type="checkbox"/>	jurisdictional (i.e., statewide)
Additional information	<input type="checkbox"/>	other:
	n/a	reference sites linked to ALU
	n/a	reference sites/condition referenced in water quality standards
	<input type="checkbox"/>	some reference sites represent acceptable human-induced conditions

**Reference sites are presently defined by statistical category (example: 95th percentile), but ICPRB would prefer to establish hypothetical reference conditions.

Field and Lab Methods

Assemblages assessed	<input checked="" type="checkbox"/>	benthos (<i><100 samples/year; multiple seasons, multiple sites – broad coverage for watershed level</i>)
	<input checked="" type="checkbox"/>	fish (<i><100 samples/year; multiple seasons, multiple sites – broad coverage for watershed level</i>)
	<input type="checkbox"/>	periphyton
	<input checked="" type="checkbox"/>	other: phytoplankton and zooplankton (<i><100 samples/year; multiple seasons, multiple sites – broad coverage for watershed level</i>)
Benthos		
sampling gear		kick net (1 meter); 200-400 micron mesh
habitat selection		riffle/run (cobble)
subsample size		entire sample
taxonomy		family
Fish		
sampling gear		backpack electrofisher, seine; 1/4" mesh
habitat selection		multihabitat
sample processing		length measurement and anomalies
subsample		selected species, batch
taxonomy		species
Habitat assessments		visual based; performed with bioassessments
Quality assurance program elements		ICPRB follows QA protocols according to each state's requirements. Elements include periodic meetings and training for biologists, taxonomic proficiency checks, and a certification program for bioassessment.

Data Analysis and Interpretation*

Data analysis tools and methods	<input checked="" type="checkbox"/>	summary tables, illustrative graphs
	<input checked="" type="checkbox"/>	parametric ANOVAs
	<input checked="" type="checkbox"/>	multivariate analysis
	<input checked="" type="checkbox"/>	biological metrics (<i>aggregate metrics into an index</i>)
	<input type="checkbox"/>	disturbance gradients
	<input type="checkbox"/>	other:
Multimetric thresholds		
transforming metrics into unitless scores		Current emphasis is on the 95 th percentile of all sites (reference and stressed) and a quadrisection of the range. Presently testing various published methods of establishing scoring thresholds in each jurisdiction.
defining impairment in a multimetric index		Consistent thresholds are currently being assembled from impairment criteria applied by member states.
Evaluation of performance characteristics <i>Not currently evaluated</i>	<input type="checkbox"/>	repeat sampling
	<input type="checkbox"/>	precision
	<input type="checkbox"/>	sensitivity
	<input type="checkbox"/>	bias
	<input type="checkbox"/>	accuracy
Biological data		
Storage		Raw data and documentation are obtained from state and federal agencies in varying formats (hardcopy, disc, downloadable ftp files). Data are stored and analyzed using a custom-developed MS Access database similar to EDAS.
Retrieval and analysis		Various statistical software applications are being evaluated; i.e. S-PLUS, Total Access Statistics, et al.

*The objective of the *Basinwide Assessments* program is to integrate and analyze monitoring data from member states' nontidal rivers and streams. While states' data cannot be compared directly, most apply a similar data analysis approach. ICPRB is adapting this analysis framework by selecting and normalizing consistent criteria from the various approaches to define reference and stressed conditions. Invertebrate communities at these sites will be measured and compared. Candidate metrics are also being screened for assessment accuracy and redundancy to select core metrics.